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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,084	01/28/2004	Ashwin J. Mathew	03226/516001	4594

32615 7590 01/29/2010
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EXAMINER

RAYYAN, SUSAN F

ART UNIT	PAPER NUMBER
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2167

NOTIFICATION DATE	DELIVERY MODE
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01/29/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/767,084	Applicant(s) MATHEW ET AL.	
	Examiner SUSAN FOSTER RAYYAN	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/09/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-39 are currently pending.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 11/29/2006, 1/25/2007, 9/7/2007, 6/19/2008 were filed before First Office Action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-6,9-11, 14-19, 22-24,27-32, 35-37 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,609,123 issued to Henk Cazemier et al ("Cazemier") and US 2002/0165724 A1 issued to Bartus C. Blankesteyjn (Blankesteyjn").**

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As per claim 1 Cazemier teaches:

a unified entity-relationship system comprising a plurality of entities, said entities each comprising a plurality of attributes (column 2, lines 43-51, as In Entity Relationship models data is described as entities, attributes and relationships) ;

at least one subsumed entity-relationship system coupled to said unified entity-relationship system, wherein said entities of said unified entity-relationship system are mapped to one another and to entities and attributes of entities of said subsumed entity-relationship system (column 3, lines 48-60, as a metadata model containing model objects that represent sources and column 21, lines 60-76, mapping and transformation));

a join engine peer coupled to said unified entity-relationship system for performing joins and splits to form related entities according to a join model (column 17, lines 47-55, as the table extracts construction transformation 112c then attempts to determine a relationship between data access layer tables 122 based on the extended record identifiers. These relationships are represented in the metadata model as join relationships); and

a global object model coupled to said join engine peer, said global object model comprising said mapped relationships and said join model specifying transformations and queries required for forming an entity from a set of related entities (column 3, lines 48-60, as a query engine for formulating a query to obtain data from one or more sources, a metadata model containing model objects that represent sources. column 6, lines 51-51, transformations

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complete the metadata model.), wherein at least one of said set of related entities is obtained from a second source system (column 7, lines 11-24, as executing against the underlining data sources).

Cazemier does not explicitly teach a first source system for publishing a data of an attribute of an entity, wherein said entity is one of a plurality of entities and a third source system for storing said entity formed by said join engine peer . Blankesteijn does teach this limitation at ([0164], as alternatively placing the data change object into a data space (e.g., a queue) to be transmitted by the publish interface. If a data change object to be published /pushed to a client, the control passes to step 156 and the data change object 157 is transmitted to the appropriate client(s)) and a third source system for storing said entity formed by said join engine peer [0095] and [0164],as transmitting to the appropriate client(s) . It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cazemier with a first source system for publishing a data of an attribute of an entity, wherein said entity is one of a plurality of entities and a third source system for storing said entity formed by said join engine peer to efficiently propagate data changes as described by Blankesteijn at Abstract.

As per claim 2, same as claim arguments above and Cazemier teaches: wherein said entities are mapped by automatically importing schemas of databases for said entities into said global object model and correlating

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relationships between related entities (column 8, lines 9-22, as data access layer contains a part of the model objects and may include schemas).

As per claim 3, same as claim arguments above and Cazemier teaches:

wherein the attributes of an entity of said subsumed entity-relationship system are mapped to corresponding attributes of entities of said unified entity-relationship system (see column 8, lines 22-34 and column 11, lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 4, same as claim arguments above and Cazemier teaches:

wherein a subset of the attributes of said entity of said subsumed entity-relationship system are mapped to corresponding attributes of entities of said unified entity-relationship system (see column 8, lines 22-34 and column 11, lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 5, same as claim arguments above and Cazemier teaches:

wherein said entity in said unified entity-relationship system is mapped a plurality of times to a corresponding individual entity within a plurality of subsumed entity-relationship systems (see column 8, lines 22-34 and column 11, lines 42-46, as

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transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 6, same as claim arguments above and Cazemier teaches:

wherein a single entity within said unified entity-relationship system is mapped to said set of related entities within a single subsumed entity-relationship system, said unified entity-relationship system being mapped to a different set of attributes for each of said set of related entities(see column 8, lines 22-34 and column 11,lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 9, same as claim arguments above and Cazemier teaches:

wherein said schemas are hierarchical (column 2, lines 23-26, hierarchical model).

As per claim 10, same as claim arguments above and Cazemier teaches:

wherein a schema is extended from a parent class entity to a child class entity based on user-defined parent/ child inheritance relationships (column 9, lines 51-60, an entity may inherit information from another entity using a technique called

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subtyping).

As per claim 11, same as claim arguments above and Cazemier teaches:

wherein said child class entity inherits relationships from said parent class entity (column 9, lines 51-60, an entity may inherit information from another entity using a technique called subtyping).

As per claim 14 Cazemier teaches:

a) mapping entities within a unified entity-relationship system to entities within subsumed entity-relationship systems(column 2, lines 43-51, as In Entity Relationship models data is described as entities, attributes and relationships and column 21, lines 60-76, mapping and transformation)) ;

b) specifying relationships between mapped entities to generate a unified entity-relationship model(column 17, lines 47-55, as the table extracts construction transformation 112c then attempts to determine a relationship between data access layer tables 122 based on the extended record identifiers. These relationships are represented in thee metadata model as join relationships); and

c) using said global attribute object model in conjunction with a join model for enforcing data consistency within said network (column 3, lines 48-60, as a query engine for formulating a query to obtain data from one or more sources, a metadata model containing model objects that represent sources. column 6, lines 51-51, transformations complete the metadata model.) by:

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forming, by said join engine peer, said entity from a set of related entities, wherein at least one of said set of related entities is obtained from a second source system (column 7, lines 11-24, as executing against the underlining data sources).

Cazemier does not explicitly teach publishing a data change of an attribute of an entity stored on a first source system, wherein said entity is one of said entities within said subsumed entity-relationship systems and storing said entity in a third source system. .Blankesteyn does teach this limitation at ([0164], as alternatively placing the data change object into a data space (e.g., a queue) to be transmitted by the publish interface. If a data change object to be published /pushed to a client, the control passes to step 156 and the data change object 157 is transmitted to the appropriate client(s)) and storing said entity in a third source system ([0095] and [0164], as transmitting to the appropriate client. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cazemier with teach publishing a data change of an attribute of an entity stored on a first source system, wherein said entity is one of said entities within said subsumed entity-relationship systems and storing said entity in a third source system to efficiently propagate data changes as described by Blankesteyn at Abstract.

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As per claim 15, same as claim arguments above and Cazemier teaches:

wherein said entities are mapped by importing schemas of databases for said entities into said global attribute object model and correlating relationships between related entities(column 8, lines 9-22, as data access layer contains a part of the model objects and may include schemas, tables, data access joins).

As per claim 16, same as claim arguments above and Cazemier teaches:

wherein all of the attributes of said entity of said subsumed entity-relationship system are mapped to corresponding attributes of entities of said unified entity-relationship system (see column 8, lines 22-34 and column 11, lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 17, same as claim arguments above and Cazemier teaches:

wherein a subset of the attributes of said entity of said subsumed entity-relationship system are mapped to corresponding attributes of entities of said unified entity-relationship system (see column 8, lines 22-34 and column 11, lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 18, same as claim arguments above and Cazemier teaches:

wherein said entity in said unified entity-relationship system is mapped a plurality of times to a corresponding individual entity within a plurality of subsumed entity-relationship systems (see column 8, lines 22-34 and column 11, lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 19, same as claim arguments above and Cazemier teaches:

wherein a single entity within said unified entity-relationship system is mapped to said set of related entities within a single subsumed entity-relationship system, said unified entity-relationship system being mapped to a different set of attributes for each of said set of related entities(see column 8, lines 22-34 and column 11,lines 42-46, as transformations construct portions of the common metadata model based on objects contained in another portion of the metadata model and column 21, lines 60-76, mapping and transformation).

As per claim 22, same as claim arguments above and Cazemier teaches:

wherein said schemas are hierarchical (column 2. lines 23-26, hierarchical model).

As per claim 23, same as claim arguments above and Cazemier teaches:
wherein a schema is extended from a parent class entity to a child class entity based on user-defined parent- child inheritance relationships (column 9, lines 51-60, an entity may inherit information from another entity using a technique called subtyping).

As per claim 24, same as claim arguments above and Cazemier teaches:
wherein said child class entity inherits relationships from said parent class entity (column 9, lines 51-60, an entity may inherit information from another entity using a technique called subtyping).

Claims 27- 32, 35-37 are rejected based on the same rational as claims 14-19, 22-24 above.

Claims 12-13, 25-26, 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cazemier (“Cazemier”) and Blankesteyjn (“Blankesteyjn”) in view of US 5,787,415 issued to Paul Jacobson et al (“Jacobson”).

As per claim 12, same as claim arguments above and Cazemier and Blankesteyjn do not explicitly teach wherein said set of related entities are marked for cascading deletes. Jacobson does teach cascading deletes (at column 9, lines 65, as cascading deletes). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify

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Cazemier and Blankesteyn with cascading deletes for referential integrity as described by Jacobson at column 10, line 1.

As per claim 13, same as claim arguments above and Jacobson teaches: wherein a deletion of said entity results in the automatic deletion of related entities that are marked for cascading deletes (at column 9, lines 65, as cascading deletes).

As per claim 25, 38 same as claim arguments above and Cazemier and Blankesteyn do not explicitly teach wherein said set of related entities are marked for cascading deletes. Jacobson does teach cascading deletes (at column 9, lines 65, as cascading deletes). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cazemier and Blankesteyn with cascading deletes for referential integrity as described by Jacobson at column 10, line 1.

As per claim 26, 39 same as claim arguments above and Jacobson teaches: wherein a deletion of said entity results in the automatic deletion of related entities that are marked for cascading deletes (at column 9, lines 65, as cascading deletes).

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Claims 7-8, 20-21, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cazemier et al (“Cazemier”) and Blankesteyjn (“Blankesteyjn”) in view of US 6,842,904 issued to Bradley J. Bartz et al (“Bartz”).

As per claim 7, same as claim arguments above and Cazemier and Blankesteyjn do not explicitly teach wherein said global object model is maintained in a versioned store. Bartz does teach this limitation (at column 1, lines 20-21, as some databases are known as versioned stores). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cazemier and Blankesteyjn with a versioned store to allow for storage and tracking of multiple versions of files or documents as they evolve over time as described by Bartz at column 1, lines 13-16.

As per claim 8, same as claim arguments above and Bartz teaches: wherein join engines throughout said network maintain a copy of said object model obtained from said versioned store(at column 1, lines 20-21, as some databases are known as versioned stores , stores versions of documents).

As per claim 20, 33 same as claim arguments above and Cazemier and Blankesteyjn do not explicitly teach wherein said global attribute object model is maintained in a versioned store for allowing users to deploy a specific version

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compatible with their system configuration. Bartz does teach this limitation (at column 1, lines 20-21, as some databases are known as versioned stores). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cazemier and Blankesteyjn with wherein said global attribute object model is maintained in a versioned store for allowing users to deploy a specific version compatible with their system configuration to allow for storage and tracking of multiple versions of files or documents as they evolve over time as described by Bartz at column 1, lines 13-16.

As per claim 21, 34 same as claim arguments above and Bartz teaches: maintaining a copy of said global attribute object model within a plurality of join engine peers(at column 1, lines 20-21, as some databases are known as versioned stores , stores versions of documents).

Response to Arguments

5. Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUSAN FOSTER RAYYAN whose telephone number is (571)272-1675. The examiner can normally be reached on M-F, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on 571-272-7079. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SUSAN FOSTER RAYYAN/

Examiner, Art Unit 2167

January 18, 2010

/John R. Cottingham/

Supervisory Patent Examiner, Art Unit 2167